

**REMARKS**

Claims 1-84 are all the claims pending in the application. The claims have been amended for clarity.

Claims 1,2,4,5,7,9-12,14,15,17,19,20-27,29-34,48-50,52-56,66-74 and 84 have been rejected under 35 U.S.C. § 103 as being obvious over the combination of the Sun and Boyle references. The remaining claims have been rejected in a series of rejections involving several tertiary references. Applicants amend the claims and traverse the rejections on the basis of the following comments.

As the Examiner now recognizes, Sun does not describe a system in which the applied pulses can be varied in pulse width from pulse-to-pulse, which is a key attribute of the present invention responsible for many of its unique advantages. It is not clear to Applicants why the Examiner has retained Sun in the present rejection, in view of its failure to describe any of the important features of the invention.

The Examiner relies on Boyle to teach a multiple-pulse machining method, where the first pulses applied to the material have a greater pulsewidth than the second pulses in each burst. Boyle is clearly a more relevant reference than Sun. However, neither of the references are relevant to the claims as presently clarified, as explained below.

First of all, a translation of the Boyle reference is attached for the Examiner's convenience.

Boyle clearly describes a system where *all* of the pulses have energies below the "modification threshold" or "microstructuring threshold" of the material, and further, where *all* of the pulses are in the ultrashort regime (here, 200fs (0.2ps)). This is contrary to the essence of the present invention. According to the invention, the pulses are specifically in different regimes

and the “long” first pulse is not an ultrashort femtosecond pulse. Further, one of the pulses exceeds the ablation threshold.

To the extent that these features were not already at least implicitly claimed, the claims have been clarified in various ways to better highlight these features. Claim 1 does so by indicating that the first pulse is a pedestal capable of transferring heat by a thermal mechanism. Claim 12 does so by keynoting the length of the first pulse at greater than 10ps. Claim 22 does so by indicating that the first pulse is linearly absorbed by the material. With this amendment, each of the independent claims includes one or more of these features, or a relevant analogue, and all are distinguished from the prior art.

To the extent that Applicants can prognosticate that the Examiner may consider trying to combine Sun and Boyle in a different fashion, specifically by incorporating Sun’s longer pulses into Boyle, Applicants caution that such would be expressly contrary to Boyle’s “careful input into the material to be processed”, which requires duplicate femtosecond low energy pulses.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.111  
Application No.: 10/813,389

Attorney Docket No.: A8701

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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